Great Rivers Partnership:

Connecting Science, Policy and People to Sustain Great River Systems

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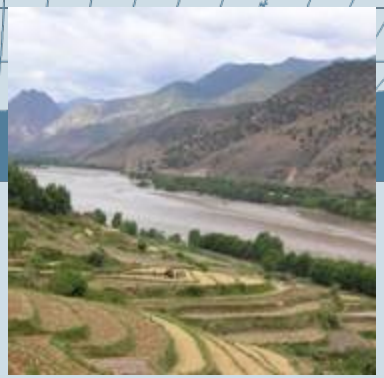
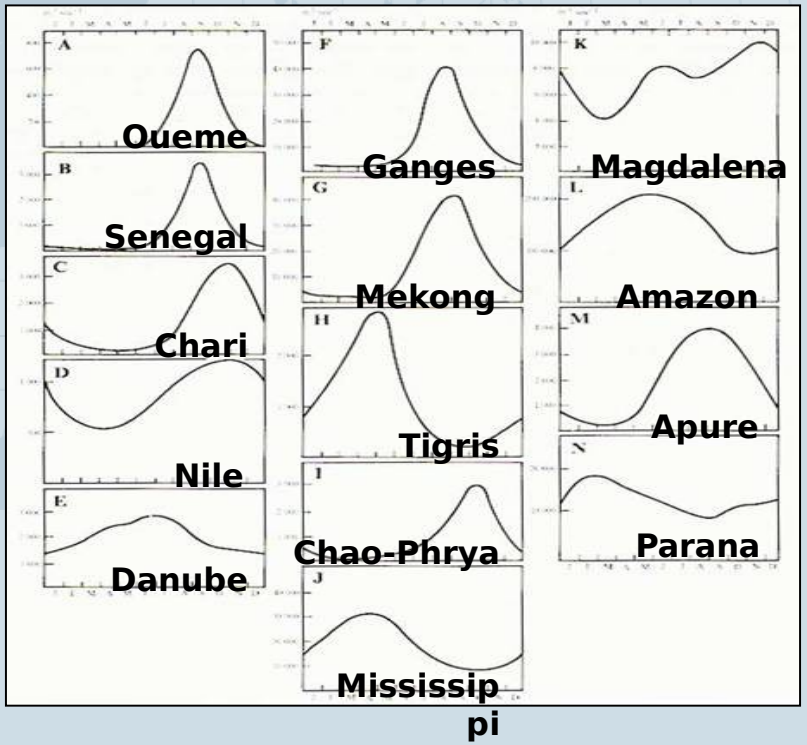
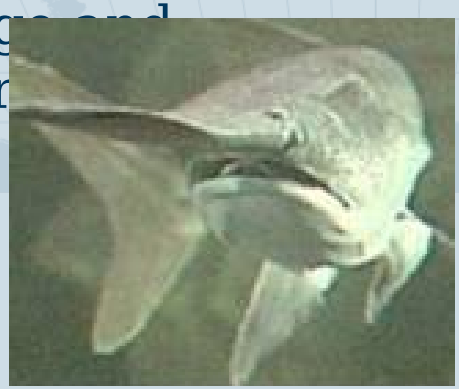
A partnership to sustain great river systems around the world for people and nature using the Mississippi River as a case study



Defining Great Rivers

- Adapted from R.L. Welcomme's criterion for major river-floodplains
- Basic criterion is biological: the flood is sufficiently long lasting, predictable, and extensive that organisms have evolved life history strategies to exploit it
- Great rivers are highly productive "working rivers" vital to cultural heritage and r





Source: Welcomme, R.L. FAO Fisheries Technical Paper. No.262. Rome, 1985. 330 pp.

The Mississippi: Case Study for Great Rivers

We can think about the Mississippi River in sophisticated ways because of unequaled investments in knowledge made over two centuries by many organizations and individuals … from Lewis and Clark to the USGS Long-Term Resource Monitoring Program.

Lewis-Clark Expedition

Stephen A. Forbes

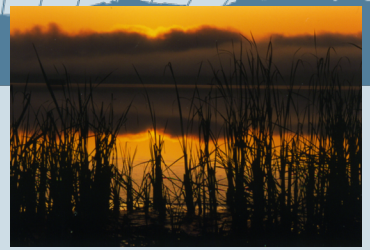
Charles Kofoid and Miles Newberry in high water on Illinois River, early 1900s

LTRMP staff, early 2000s

The Mississippi: Case Study for Great Rivers

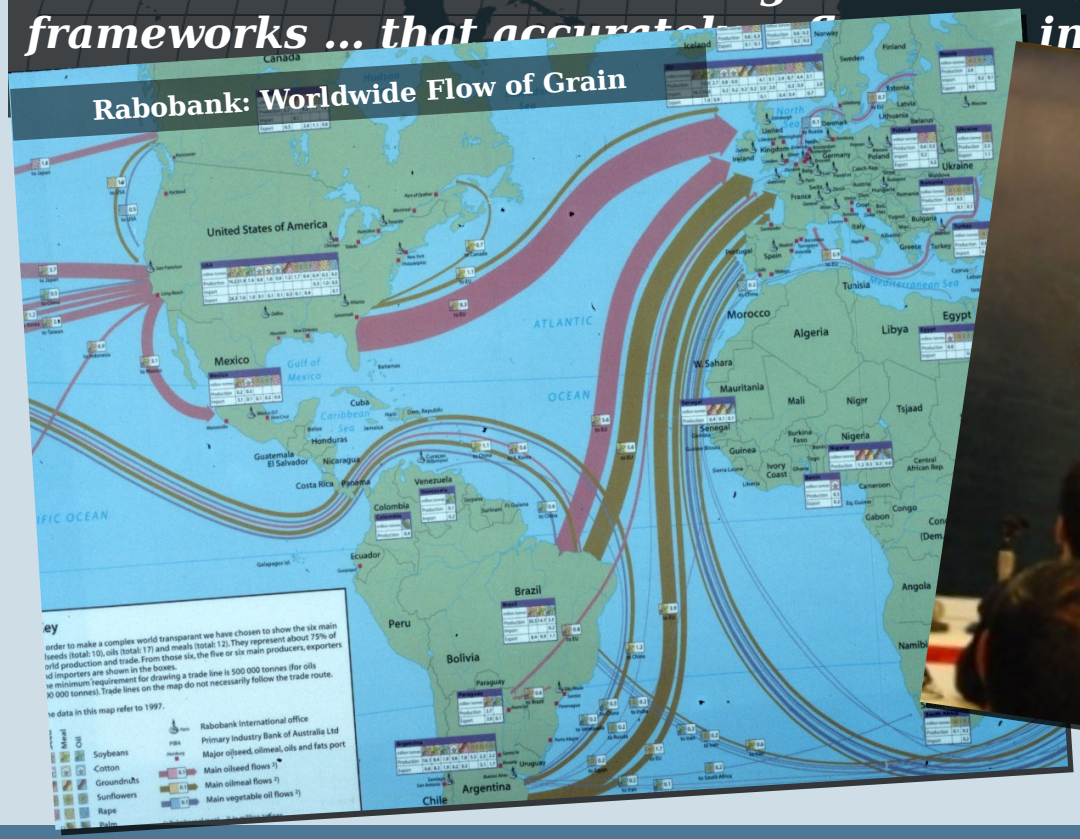
Yet often the Mississippi remains an "orphan" (NRC) – information is fragmented, programs and projects disconnected. To sustain the Mississippi River, we must get past isolated agendas and address the major issues of our day – food, water, climate, energy, transportation – through collaboration.

Through the GRP, TNC and partners are focused on building an enduring, future-oriented systems approach that engages all perspectives in adaptive, sustainable management of the Mississippi River, and fosters an inter-generational commitment to implementation.



The Mississippi: Case Study for Great Rivers

We can benefit by understanding our issues from a global perspective and learning from others managing great river systems, addressing similar issues . Through the GRP, TNC and partners are also focused on the need to share knowledge and provide global leadership in the management of large working rivers because "each of the world's largest [rivers] requires a basin-wide sustainable management strategy, built on new institutional frameworks … that accurate… inescapable linkages of …tainability (Keddy)."



Source: Excerpts from Keddy, Paul A. et al., "Wet and Wonderful: The World's Largest Wetlands Are Conservation Priorities" BioScience, Jan. 2009.

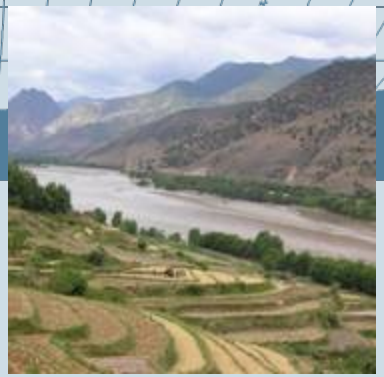
GRP: Emerging Opportunities

Mississippi River: 1) Design process for developing collaborative integrated river management strategy at system scale ($25K; 1Q2010); 2) Create partner agreement for implementation of Coastal Louisiana Restoration Plan ($50K; 2Q2010); Support assessment of USDA Mississippi River Basin Initiative for nutrients ($2M; 2010-12); 3) Pilot research on floodplain ecosystem services; 4) Develop sustainability indicators for agricultural landscapes as part of Field to Market ($150K; 2010-11); 5) Convene scientists and users across 10 cities with America *Speaks* to assess river health and future scenarios ($1M; 4Q2010).

Yangtze River: 1) Share best practices for monitoring river health and supporting adaptive management ; 2) Explore additional areas for exchange, e.g., Amur, Pearl, Yellow,, and Mekong ($100K; 2010-2011).

Mekong River: 1) Share best practices for integrated river basin management and governance between Mississippi River Commission and Mekong River Commission ($100K; 2010).

Magdalena River: 1) Advise Cormagdalena on creation of integrated river basin management plan with USACE ($2M; 2010-11).



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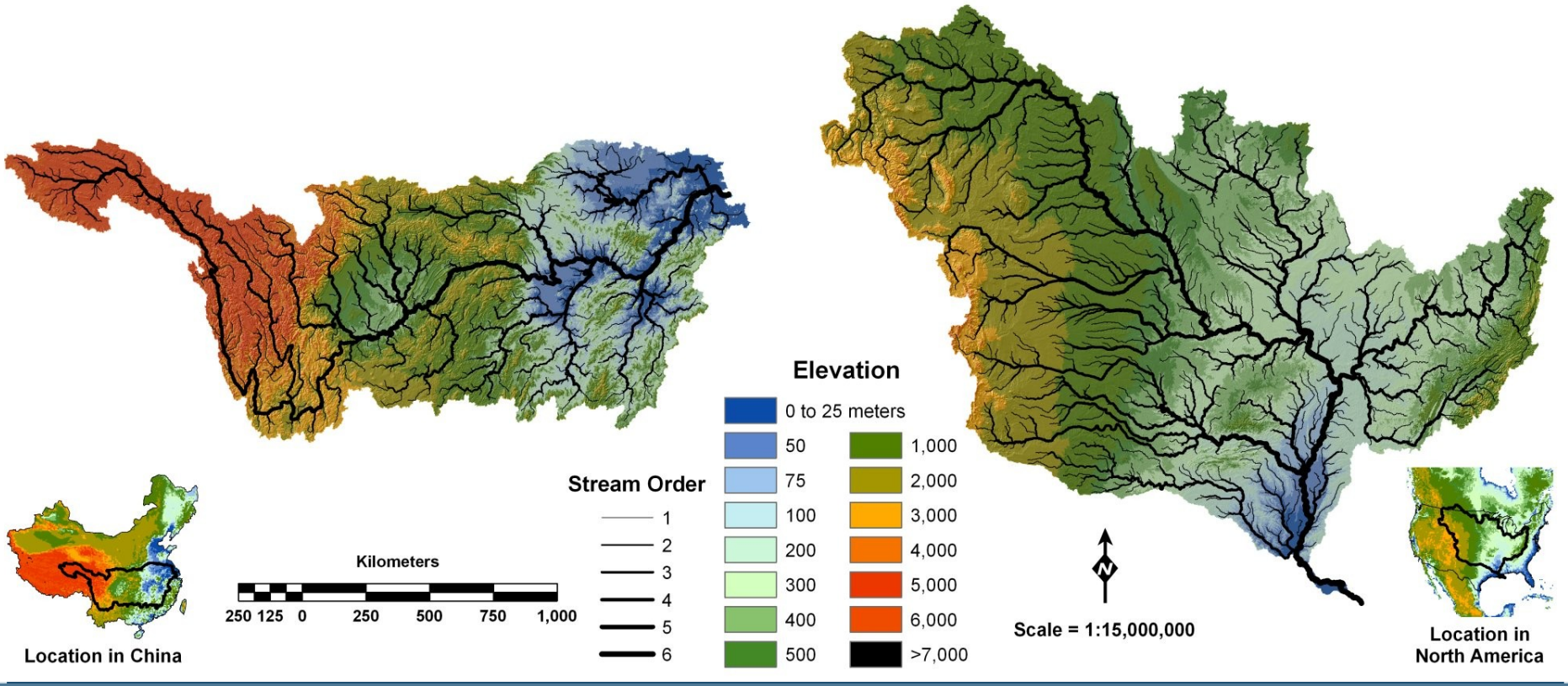
Science Exchange between the Yangtze and Mississippi Rivers:

Supporting Monitoring and Adaptive Management

Natural Experiments

Basin latitudes

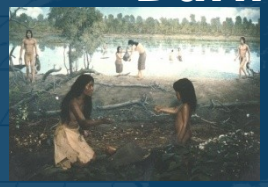
River:	YANGTZE	MISSISSIPPI
Basin Area	1,808,500 km²	3,202,000 km²
Length	5,980 km	3,703 km
Ave. discharge	34,000 m³/s	17,545 m³/s
Ann. sediment load	499,000,000 m-tons/yr (pre-dams)	210,000,000 m-tons/yr (post-dams)



Source: USGS, Upper Midwest Environmental Sciences Center, 2008

Theoretical Health/Wealth Relationships

During 3 Stages of Natural Resource Use



Ecosystem Health

Total Wealth

Restoration

??

Mississippi

Yangtze

"Manufactured" Wealth"

"Natural" Wealth

Stable/ Sustainable

Taking

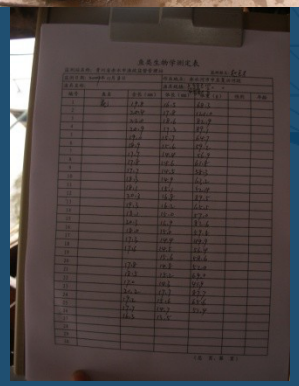
Negative Feedback

Time >>>

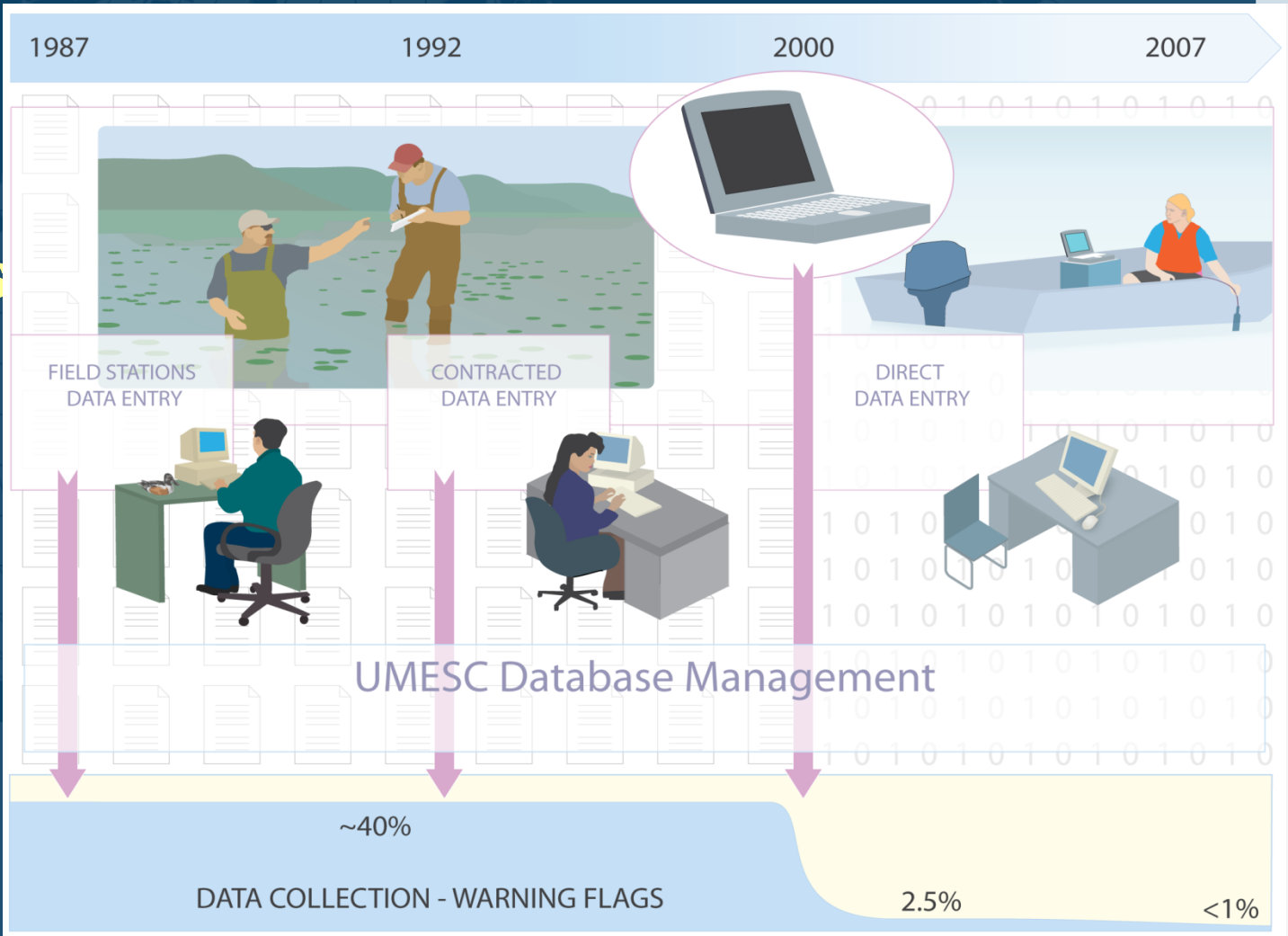
Talks in Beijing at Hydrology Bureau

Status of the Monitoring Networks

Yangtze



Mississippi

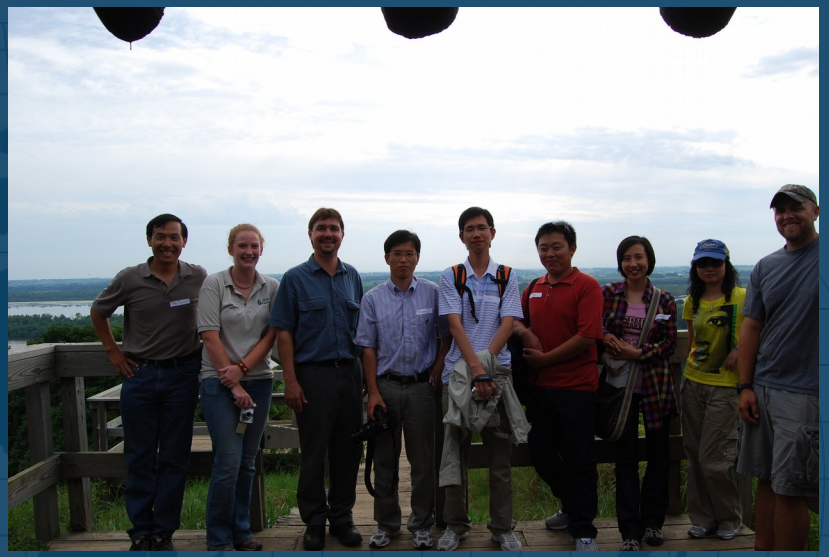


On the Mississippi River

On the Yangtze River

On the Qinghai-Tibet Plateau

Exploring the rivers

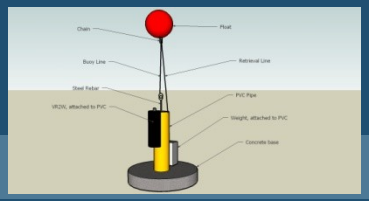


“Here, I see harmony between humans and the river”, said Mr. Weili Lou of the Yangtze River Fishery Management Office in Shanghai after a kayaking trip on the Mississippi River in La Crosse, Wisconsin

From Meetings to Actual Field Work

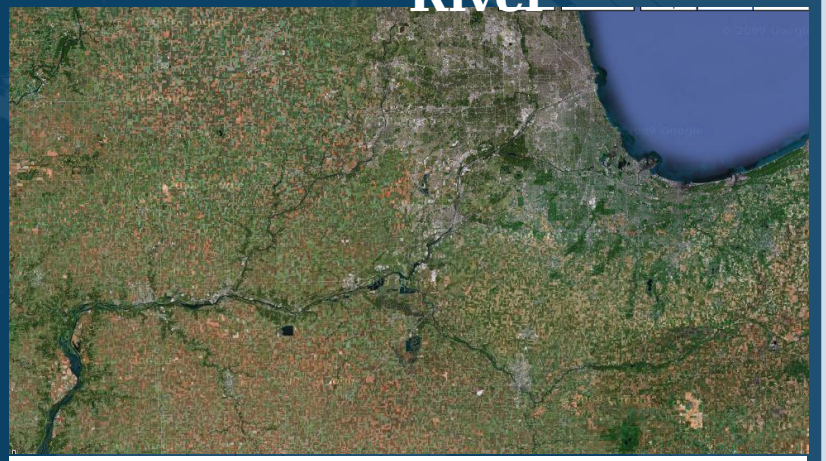
Opportunities on the Horizon

In November 2009, our Chinese partners acquired US $1.9 million from Chinese central government to study Asian carps in the Yangtze during the next 3 years



Sonic Telemetry Network

Illinois River

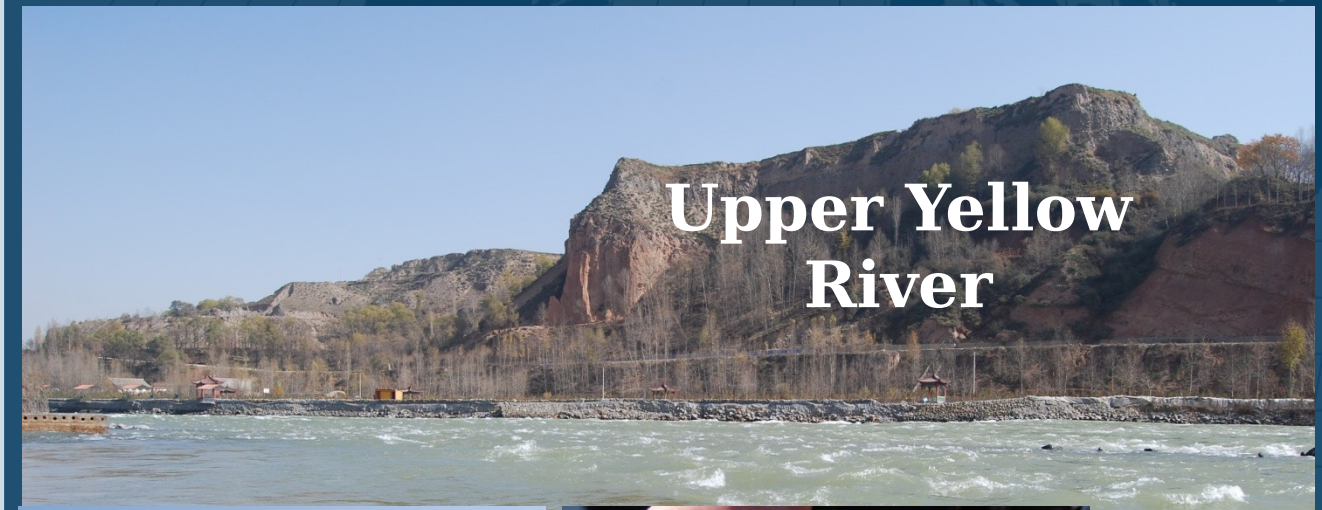


Illinois River infested with giant silver carp

Tuesday, December 22, 2009

The Associated Press

Applying the Yangtze Experience Worldwide



Because of our success on the Yangtze River, the government of China invites us to expand the science exchange, including to the Yellow, Pearl, and Amur River basins. We believe the same approach can be applied to many other great rivers in the world.

Sharing the Challenge to Sustain Great Rivers

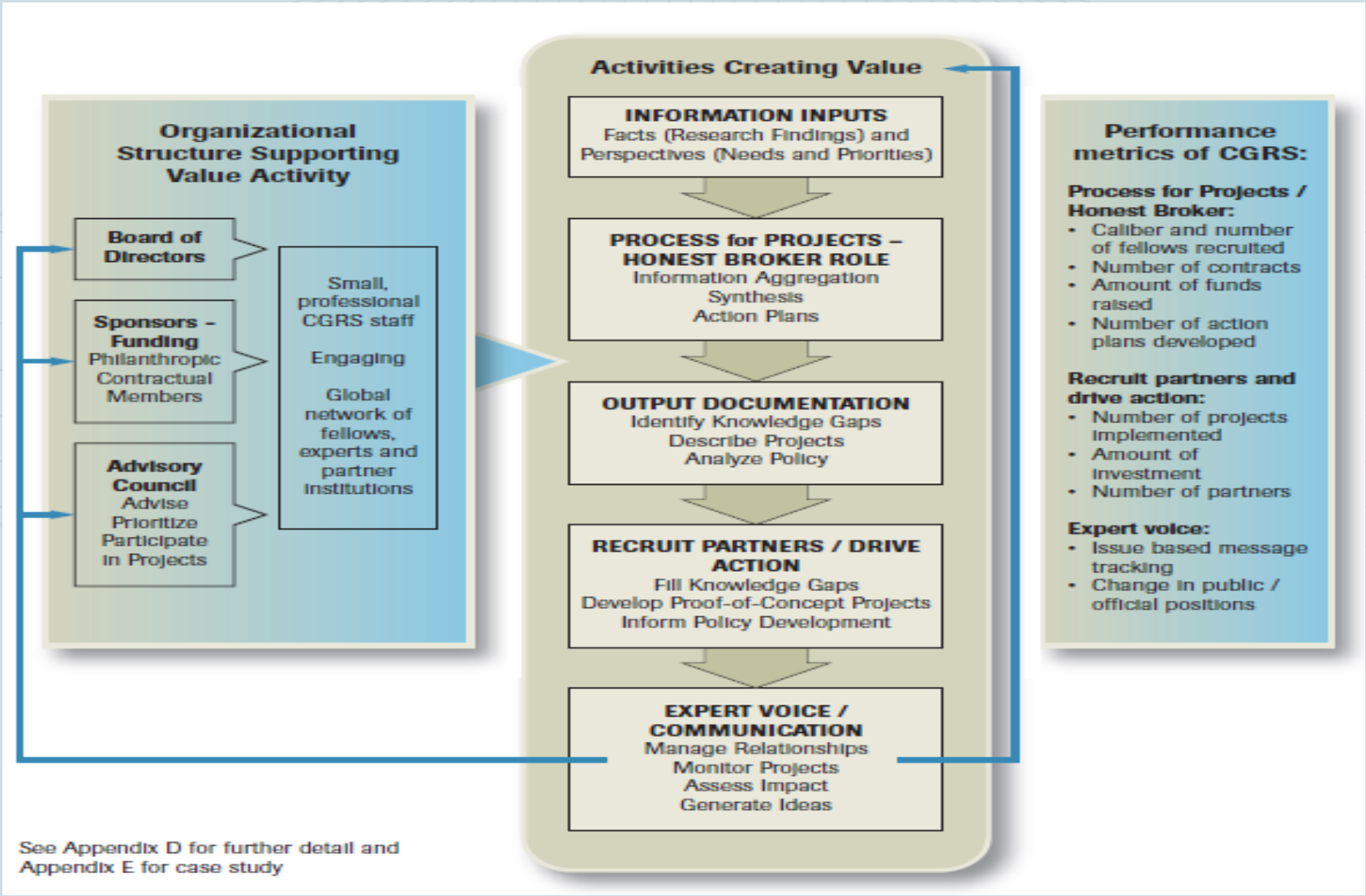
Yangtze-Mississippi Monitoring Exchange

— Designed to meet specific needs and objectives of Yangtze Water Resources Commission and Yangtze Fisheries Commission

— Staffed by US Geological Survey and The Nature Conservancy as part of the Great Rivers Partnership

— Potential for expanding to Yellow River, Pearl, Amur, Mekong with YFC funds

Great Rivers Center: Adaptive Management Model

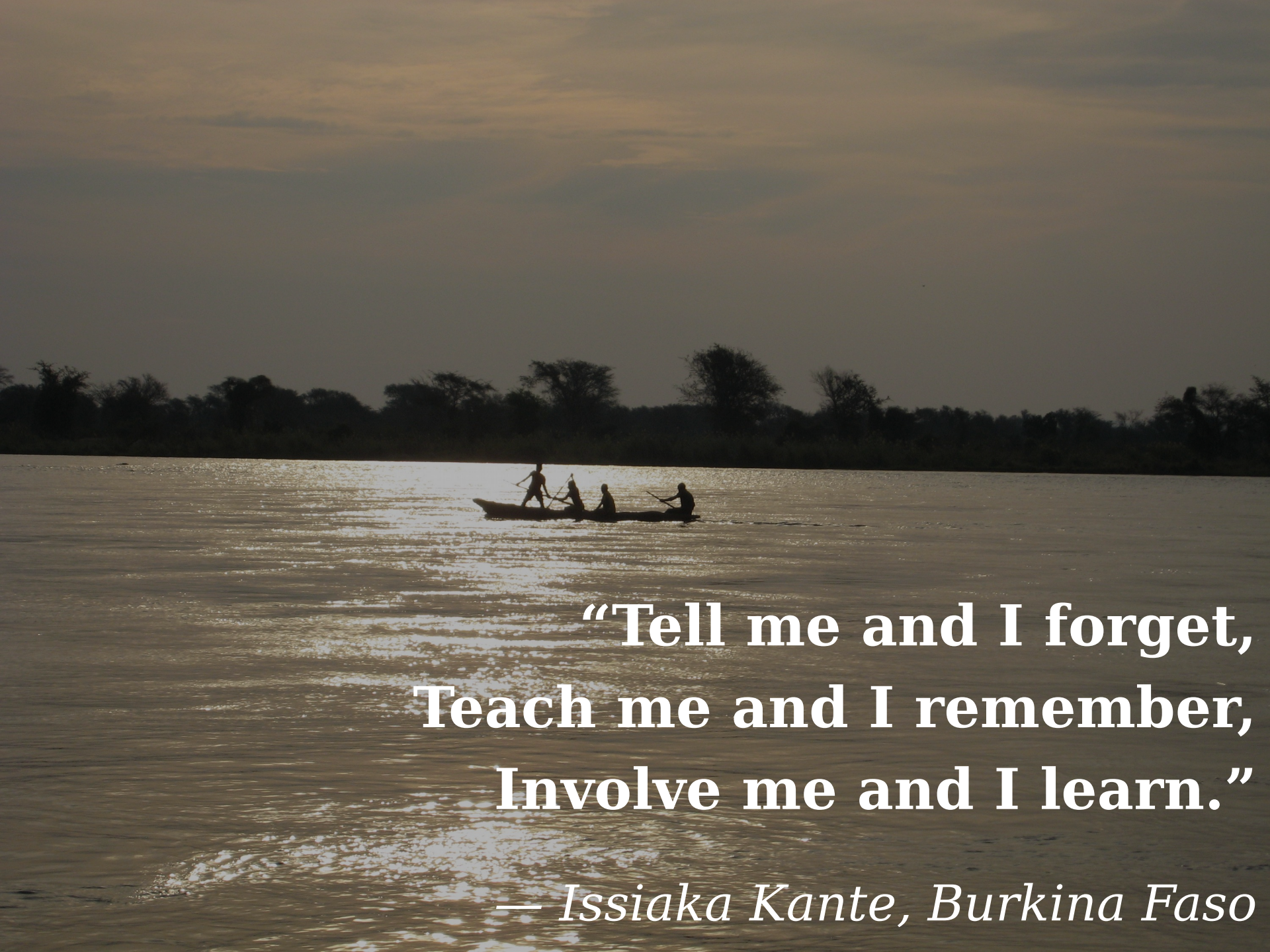


Summary

- Since 2005, the GRP has initiated work to sustain great rivers on four continents – including the Mississippi, Yangtze, Paraguay-Parana, Magdalena, Zambezi – and raised more than $60 million. The GRP has engaged US-based multi-national corporations in this endeavor, and has engaged a wide variety of stakeholders in promoting a systems-based approach to river management.
- USGS and USACE have been key federal partners. USGS and the LTRMP bring an invaluable depth of science and experience in informing adaptive management, based on the Mississippi River which can serve as a global case study. The Yangtze-Mississippi exchange demonstrates the potential to leverage this investment.
- To realize the promise of the GRP over time, it needs a stronger institutional foundation and shared leadership. We envision a partner-oriented organization affiliated with top-tier universities and institutions. The mission will focus on the challenge of sustainability in the context of great rivers by sharing knowledge among the people who depend on these great rivers globally, and informing systems-based management.

Some Questions

- What are the strengths/weaknesses of this idea? What can we improve upon, or position to help advance the larger national agenda?
- What can we do together to make this exchange more successful and enduring?
- Who else should we talk to? What further connections should we be making to secure additional funding and partnerships? What university or institution could provide a strong foundation for next generation?


“Tell me and I forget,
Teach me and I remember,
Involve me and I learn.”
— Issiaka Kante, Burkina Faso